Heavy Equipment and Truck and Transport - Applied Certificate

PLAR Candidate Guide

Prior Learning Assessment and Recognition (PLAR)

Prior learning credit options at Saskatchewan Polytechnic

See Get Credit for What you Know for important information about all options to get credit for prior learning at Sask Polytech, including PLAR, transfer credit, Canadian Armed Forces credit, and equivalency credit.

How to navigate this document

This document contains links to other document sections or webpages. To return to where you were from another section in this document, press the *ALT* key and *left arrow* key at the same time. To return to this webpage from another webpage, close the other webpage or click back on the browser tab for this document.

Contents of this guide

This guide contains the following specific PLAR information and tools for this program

A. PLAR fees

Fees for PLAR challenges are set to cover our costs for consultation, assessment, and related administrative tasks. PLAR fees are non-refundable and non-transferrable.

The PLAR fees policy is subject to change for each new academic year. Please see the **Cost** section on the PLAR webpage for current fee information.

B. PLAR eligibility and options

To be eligible for PLAR for courses in this program, you must first apply for admission and be accepted into the program. You must also consult with the PLAR contact person and be approved for PLAR assessment.

Course prerequisites and corequisites

Some courses have one or more other courses that must be completed first (prerequisite) or at the same time (corequisite). See course outlines in this guide to identify any pre- or co-requisites for each course. Discuss with your PLAR contact person how to deal with courses with corequisites.

Block assessment

Some programs may assess a cluster of courses together in one block, which may save you time and effort. Ask the PLAR contact person whether there are any block assessment options in this program.

C. Dates when PLAR assessment is available

PLAR assessment for this program is available from Sept 1 to June 15 in each academic year.

All PLAR assessments must be completed by June 15 of each academic year.

D. Special directions for this program

1. **Review** the PLAR process and FAQs and the information in this guide.
2. **Self-rate** your learning for each course using the Course Outlines in this guide.
3. **Consult** with the PLAR contact person for PLAR approval. Be prepared to provide your resume, course self-ratings (see section F), and a partially completed PLAR application. If you are approved for PLAR, the contact person will sign your PLAR application and explain next steps.
4. Apply for admission to the program. See directions for applying.
5. **Register** for PLAR at Registration/Enrolment Services once you have signed approval on your PLAR Application Form. The PLAR fee will be added to your student account.
6. **Finalize** an assessment plan with your assigned assessor**.**
7. **Complete** assessment before your PLAR registration expires.

E. PLAR contact person

Contact one of the Program Heads below to arrange a consultation **after** you have read this guide and general PLAR information **and** rated yourself for each course (see next section). Consultation may be by phone, online, or in person. Be prepared to provide your resume, course self-ratings, and a partially completed PLAR application. If agreement is reached to go ahead with PLAR, the contact person will sign approval on your PLAR application and explain the next steps. Admission to the program is required before you can register for PLAR.

Pascal Van Pul, Program Head
School of Transportation
Saskatchewan Polytechnic, Saskatoon Campus
Phone: 306 – 659 – 5351
Email: pascal.vanpul@saskpolytech.ca

F. Self-rating course outlines

Clicking on a course code below opens a page where you can rate yourself on the knowledge and skills assessed for PLAR credit. For Arts & Sciences courses, clicking on the course code opens another PLAR guide. The PLAR contact person for this program will refer you to another person to discuss PLAR for courses delivered by Arts & Sciences or another program/department.

COURSE CODE	COURSE NAME	Delivered by another department/program
BRAK 113	Brake Systems Air Theory	
BRAK 114	Brake Systems Air Shop	
BRAK 115	Brake Systems Hydraulic Theory	
BRAK 116	Brake Systems Hydraulic Shop	
ELCT 102	Electrical Basics Theory	
ELCT 103	Electrical Basics Shop	
HVAC 101	Environmental Control Systems	
HYDR 110	Hydraulics Basics Theory	
HYDR 111	Hydraulics Basics Shop	
JOBS 125	Essential Job Skills	Arts & Sciences
MAIN 104	Structural Components Theory	
MAIN 105	Structural Components Shop	

COURSE CODE	COURSE NAME	Delivered by another department/program
MATH 169	Trade Mathematics	Arts & Sciences
STER 102	Steering Systems Theory	
STER 103	Steering Systems Shop	
TOOL 154	Basic Tools Theory	
TOOL 155	Basic Tools Shop	
WORK 149	Work Experience	
ENGN 130	Diesel Engines Theory	
ENGN 131	Diesel Engines Shop	
INDG 100	Introduction to Indigenous Studies	Arts & Sciences

BRAK 113 - Brake Systems Air Theory

You will study the design, operation, and service recommendations for air operated systems. Air operated anti-lock braking systems will be covered. Traction and stability control systems will also be covered.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe air brake system operation.			
2. Describe antilock air brake systems.			
3. Describe air traction and stability control systems.			

BRAK 114 - Brake Systems Air Shop

You will service, repair and test air activated foundation brake systems. Park brake systems of various designs will be evaluated. Anti-lock, traction, and stability control systems will be analyzed.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate air brake systems operation.			
2. Evaluate antilock braking systems.			
3. Evaluate a traction and stability control system.			
4. Conduct final adjustments and performance tests.			
5. Repair system faults.			

BRAK 115 - Brake Systems Hydraulic Theory

You will study the design, operation, and service recommendations for hydraulic brake systems. Hydraulically operated anti-lock braking systems will be covered. Traction and stability control systems will be discussed. You will also learn about electric braking systems.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe hydraulic brake system operation.			
2. Describe hydraulic antilock brake systems.			
3. Describe hydraulic traction and stability control systems.			
4. Describe electric brake system operation.			

BRAK 116 - Brake Systems Hydraulic Shop

You will service, repair and test hydraulically activated foundation brake systems. Park brake systems of various designs will be evaluated. Air-lock, traction, and stability control systems will be analyzed. Electric brake systems will be serviced and repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Evaluate hydraulic brake system operation.			
2. Evaluate a hydraulic antilock brake system.			
3. Evaluate an electric braking system.			
4. Conduct final adjustments and performance tests.			
5. Repair faults.			

ELCT 102 - Electrical Basics Theory

You will study the fundamentals of electricity and magnetism, Ohm's law, and the use of analog and digital meters. Various faults and their effects on circuit operation will be discussed. You will study battery construction, operation, as well as testing and servicing procedures.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Apply scientific principles to explain electrical theory and magnetism.			
2. Identify electrical circuit types and faults utilizing test equipment.			
3. Explain the function and operation of a lead acid battery.			

ELCT 103 - Electrical Basics Shop

You will practice diagnosing faults in electrical circuits using digital meters. Wet cell batteries will be tested and serviced as required.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Measure electrical values and check circuit operation.			
2. Evaluate a lead acid battery.			
3. Repair faults.			

HVAC 101 - Environmental Control Systems

You will become familiar with the Heating, Refrigeration and Air Conditioning Institute's program on environmental awareness regarding Ozone Depleting Substances. You will complete the Canada's Ozone Layer Protection Awareness Program for Air Conditioning and Refrigeration System. This will certify you to legally to service and maintain air conditioning systems on mobile equipment.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Complete the Heating, Refrigeration and Air Conditioning Institute's course on ozone depleting substances.			
2. Describe regulations and code of practice for ozone depleting substances.			

HYDR 110 - Hydraulic Basics Theory

You will study the basic hydraulic principles of flow and pressure, system and component operation and maintenance procedures. You will also learn to interpret symbolic diagrams to determine system operation.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain the fundamentals of a basic hydraulic system and related components.			
2. Interpret hydraulic symbol diagrams.			
3. Describe hydraulic system maintenance and testing procedures.			
4. Describe open and closed center hydraulic systems.			

HYDR 111 - Hydraulic Basics Shop

You will disassemble, inspect, measure, assemble, adjust, and test hydraulic pumps, valves, and motors on a test stand. You will disassemble and repair hydraulic cylinders from live machines or shop models. You will work with common types of hydraulic fittings and adaptors, and practice installing hose ends, flaring, and bending tubing.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Service hydraulic system and various components.			
2. Test hydraulic systems using proper tools and procedures.			
3. Repair hydraulic systems and various components.			

JOBS 125 - Essential Job Skills

You will develop essential job skills by preparing job search documents and practicing effective interpersonal communication skills for the workplace.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Discuss effective workplace interpersonal communications.			
2. Prepare job search documents.			

MAIN 104 - Structural Components Theory

You will cover preventative maintenance programs on both highway and off road equipment. Hoisting and rigging techniques will be discussed. On highway power unit frame and suspension systems as well as docking and coupling systems will be covered. ROPS and FOPS safety systems will be covered as they pertain to heavy equipment.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe preventative maintenance programs for both highway tractors and heavy equipment.			
2. Identify hoisting and rigging techniques.			
3. Describe tractor frame construction and suspension systems.			
4. Describe truck and trailer coupling and docking systems.			
5. Describe the purpose of roll over protection system (ROPS) and operator safety systems.			

MAIN 105 - Structural Components Shop

You will perform preventive maintenance procedures on both off road and on highway equipment. Hoisting and rigging procedures will be implemented. Various hitching and docking systems will be analyzed. Highway tractor frames and suspensions will be inspected. Operator protection systems on heavy equipment will be inspected and repaired.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform preventative maintenance checks for both highway tractors and heavy equipment.			
2. Perform hoisting and rigging techniques.			
3. Repair various hitching and docking systems.			
4. Inspect frame and suspension systems.			
5. Evaluate roll over protection system (ROPS) and operator safety systems.			
6. Repair defects.			

MATH 169 - Trade Mathematics

You will learn mathematical concepts commonly used in your trade. After reviewing basic arithmetic and basic equations, you will solve various algebra problems as applied to your trade. You will perform Imperial and Metric conversions, calculate the perimeter, area, and volume of many common shapes, and use Pythagorean theorem.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Use arithmetic to solve trade-related problems.			
2. Use measurement systems.			
3. Solve trade-related equations and formulas.			
4. Solve geometric problems.			

STER 102 - Steering Systems Theory

You will focus on basic steering geometry and wheel alignment angles, wheels and tires and tire balancing.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain basic wheel and frame alignment angles.			
2. Explain manual and integral steering system operation.			
3. Describe mounting procedures for tires, rims and hubs.			

STER 103 - Steering Systems Shop

You will service steering system components and perform a wheel alignment. You will also remove and replace a wheel assembly. Also covered will be hub removal and installation using industry approved procedures. Tire removal, replacement and balancing will also be covered.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform a basic wheel alignment.			
2. Evaluate manual and integral power steering systems.			
3. Performs mounting procedures for tires, rims and hubs.			
4. Repair system faults.			

TOOL 154 - Basic Tools Theory

You will learn to identify, use and maintain hand tools and shop equipment. You will learn to read and use various measuring instruments and the proper method of sawing, filing, drilling, thread cutting, tool sharpening, and layout procedures. You will also learn to identify and use threaded fasteners and fittings, chemical fasteners and sealants. The course content includes safety rules, basic firefighting techniques and Occupational Health and Safety (OHS) and Workplace Hazardous Materials Information Systems (WHMIS) regulations.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe safety rules and regulations.			
2. Describe the purpose and care of shop and hand tools.			
3. Describe various types of fasteners, adhesives and sealing devices.			

TOOL 155 - Basic Tools Shop

You will use and maintain hand tools and shop equipment. You will use various measuring instruments and perform sawing, filing, drilling, thread cutting, tool sharpening and layout procedures. You will use threaded fasteners and fittings, chemical fasteners, and sealants. You will demonstrate safety rules and Occupational Health and Safety (OHS) and Workplace Hazardous Materials Information Systems (WHMIS) regulations.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Demonstrate safety.			
2. Explain legislative regulations.			
3. Demonstrate use and care of hand tools and shop equipment.			

WORK 149 - Work Experience

You will participate in a work placement to further your understanding of workplace employer needs. You will become familiar with the industry and gain practical experience in the workplace.

Credit unit(s): 0.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Demonstrate employability skills in the workplace.			
2. Apply technical/practical skills.			

ENGN 130 – Diesel Engines Theory

You will study the theory of operation and learn how to service and maintain the diesel engine and its support systems. This includes cooling, lubrication, mechanical and electronic fuel injection (low pressure side), emission, and air induction and exhaust systems. You will study testing, diagnosing and repair and rebuilding procedures. You will also learn how to remove and install engines.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Explain engine lubrication systems.			
2. Explain cooling systems.			
3. Explain air intake and exhaust systems.			
4. Explain diesel fuel systems (low pressure side).			
5. Explain engine operation and fundamentals.			
6. Explain diesel engine teardown and overhaul techniques.			

ENGN 131 – Diesel Engines Shop

You will study the theory of operation and learn how to service and maintain the diesel engine and its support systems. This includes cooling, lubrication, mechanical and electronic fuel injection (low pressure side), emission, and air induction and exhaust systems. You will study testing, diagnosing and repair and rebuilding procedures. You will also learn how to remove and install engines.

Credit unit(s): 2.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Perform engine and support system service.			
2. Interpret engine and support system conditions.			
3. Perform engine and support system repair and overhaul techniques.			

INDG 100 – Introduction to Indigenous Studies

You will receive an introduction to the Indigenous cultural groups within Saskatchewan. You will learn about the colonization of Indigenous peoples by the Canadian state. Your studies will help you discuss current issues and explore possible solutions.

Credit unit(s): 1.0
Prerequisites: none
Corequisites: none
Equivalent course(s): none

Use a checkmark (✓) to rate yourself as follows for each learning outcome **Competent:** I can apply this outcome without direction or supervision. **Learning:** I am still learning skills and knowledge to apply this outcome. **None:** I have no knowledge or experience related to this outcome.	**Competent**	**Learning**	**None**
1. Describe Indigenous nations of Saskatchewan.			
2. Explain how colonization has impacted Indigenous peoples.			
3. Discuss current issues and possible solutions.			